Sharing and Visualization of ASO/iSnobal Data through FERIX

64th Annual California Cooperative Snow Surveys Meeting
November 15, 2018

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Division of Flood Management – Snow Surveys Section

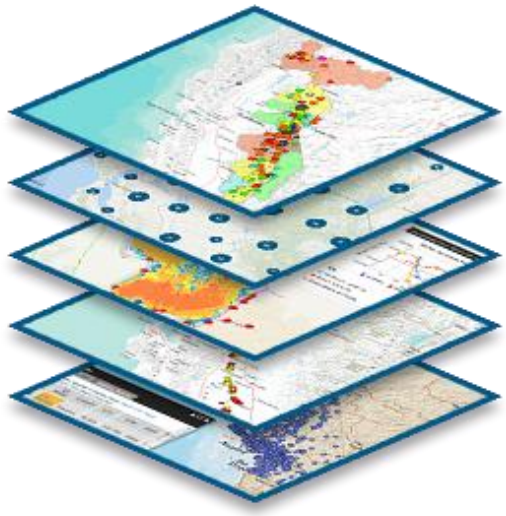
CA Cooperative Snow Surveys Historical Perspective

1908	**Dr. James E. Church invents Mt. Rose Snow Sampler**
1910	**First snow course data recorded in Lake Tahoe Basin**
1917	**Church publishes full account of surveying techniques and funding for CA Surveys approved through 1923**
1923	**LADWP begins snow surveys in Owens Basin**
1929	**AB 403 creates California Cooperative Snow Surveys with funding through 1933**
1930	First published April 1 forecasts
1933	"Soil Conservation Service founded and first meeting of the Western Snow Conference "
1934	No forecasts made for 1934 & 35 due to lack of funding. Cooperators continue to fund data collection
1935	AB 1000 refunded forecasting
1939	SCS assumes Federal responsibility for snow surveys
1943	Snow Surveys authorized permanently by Legislature and predecessor to Central Sierra Snow Lab established
1946	WSC begins publication of proceedings separate from AGU
1947	Corps of Engineers introduces radio-isotope snow sensor
1952	Central Sierra Snow Lab transferred to USFS
1953	**Aerial Marker snow depth program began**
1954	**State Lakes and Mitchell Meadow telemetered snow sensors installed by the US Army Corps**
1964	First Wilderness Act passed
1965	Butyl rubber snow pillow developed and Alpha site established
1968	Sacramento Municipal Utility District installed snow sensor at Robb's Power House
1973	“Mini” version of Bulletin 120 began publication to speed delivery of forecast information
1974	**Aerial Marker snow depth program largely terminated**
1976	**Development finished on the “metal wafer” style of snow pillow at Alpha site**
1980	**First GOES snow sensor sites installed at Dana Meadows, Big Meadows, and Paradise Meadow**
1982	No Annual Cooperator's Meeting
1983	**First snow sensors installed in USFS designated wilderness areas**
1986	CDEC established
1987	"Computer generated copy for Bulletin 120 to reduce printing time implemented"
1989	The “mini” B120 eliminated
1996	Development of the Cosmic snow sensor by Sandia National Labs began
1999	Bulletin 120 first available via internet
2006	Bulletin 120 Forecast Equations Updated
2007	Bulletin 120 80% Forecast Probabilities Revised
2008	Efforts begin to scan all snow notes

ASO Program Historical Perspective

2009	First consideration
2010	Startup commitment by NASA JPL
2011	**Partnership with CA Department of Water Resources**
2012	Funding Commitment by NASA
2012	**First snow-free flights in August (Tuolumne)**
2013	**First snow-on acquisition in April (Tuolumne)**
2013	First 24 hour turnaround in late April
2014	Expansion of California to include Lakes, Merced, Kings, and Rush
2016	Expansion to include Cherry/Eleanor
2017	Expansion to San Joaquin
2018	50th full Tuolumne acquisition

FERIX
Flood Emergency Response Information Exchange



Online system to access and exchange data in real-time through Web GIS interface

Developed by CA Department of Water Resources CDEC

Designed to improve flood emergency preparedness, response, and recovery

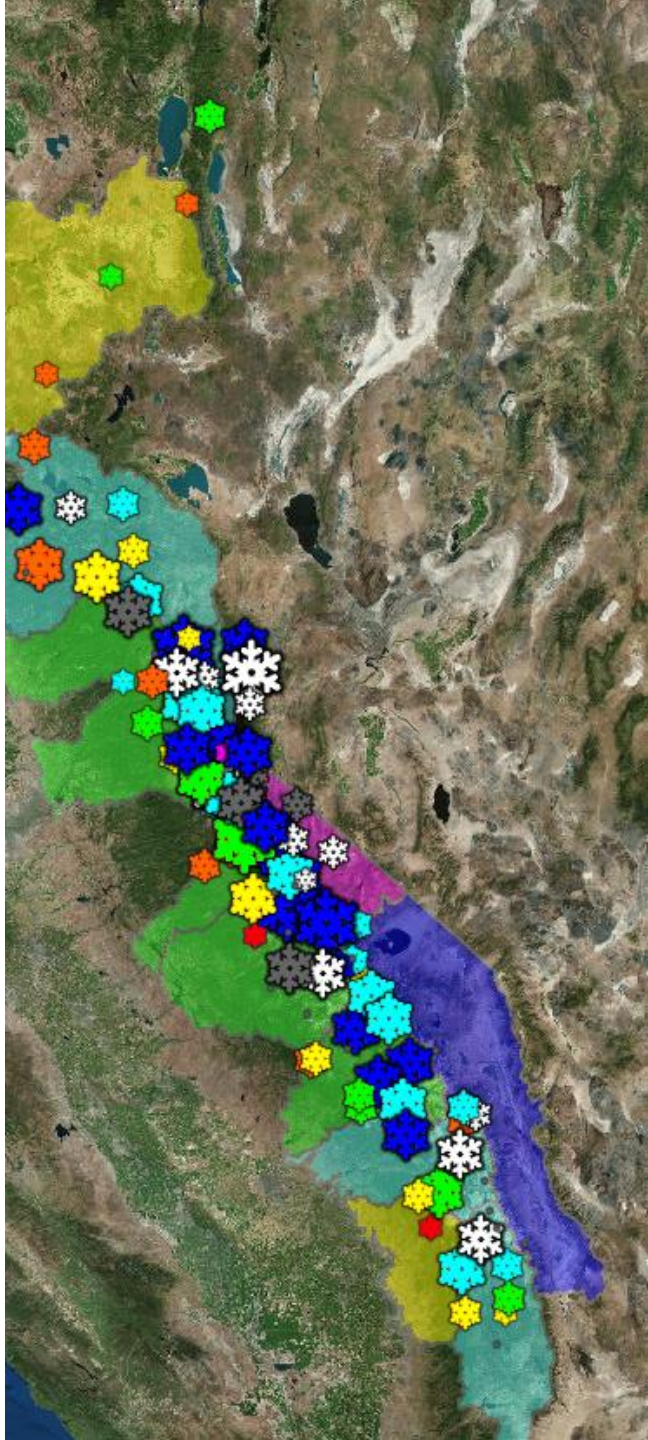
Integrates geo-referenced databases, real-time data collection and exchange systems, decision support system, H&H models and tools, and flood-related documents

FERIX
Real-Time Hydrology

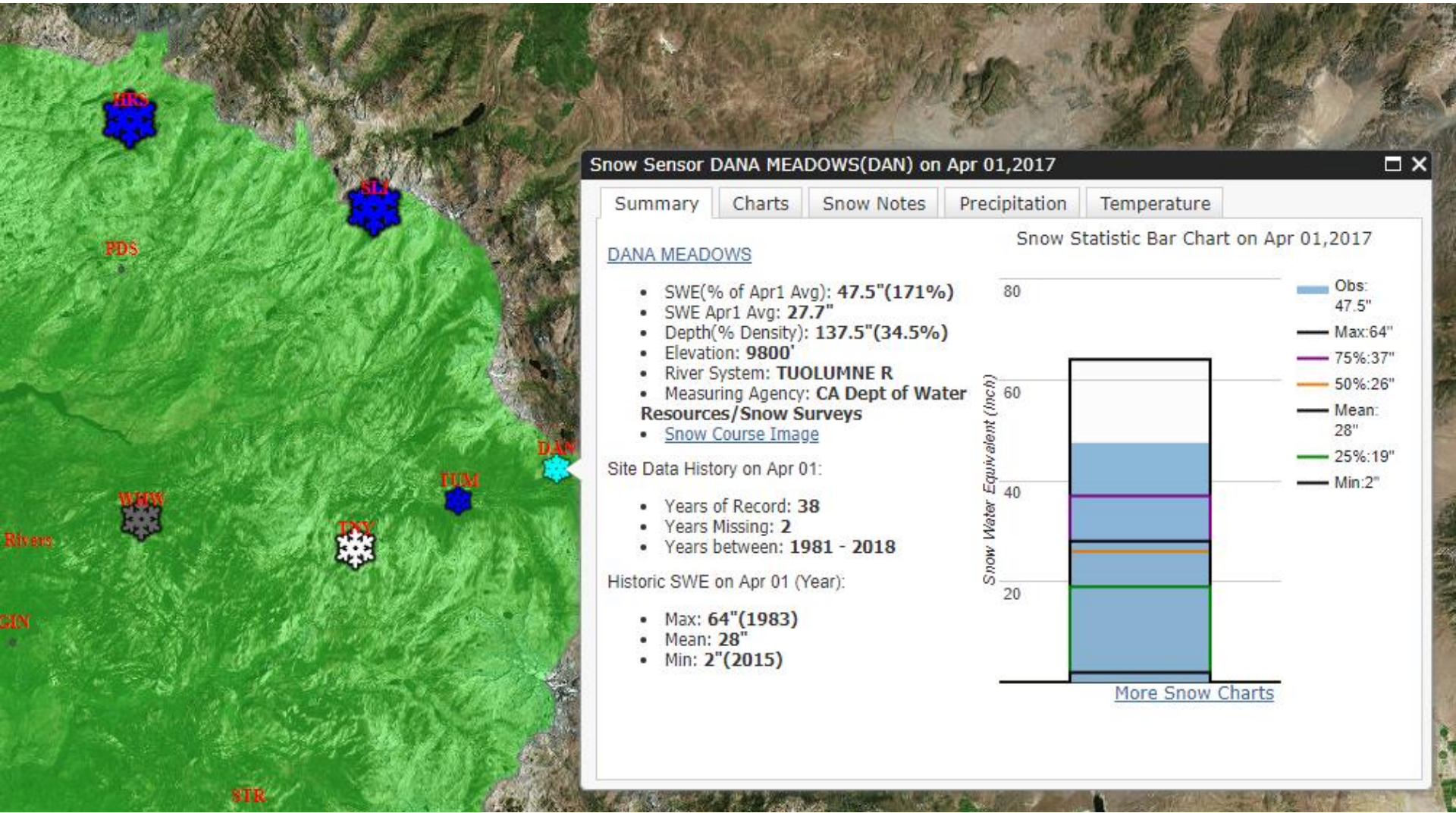
View and share real-time hydrologic data

Displays CDEC stations, snow course and sensor data, reservoir information

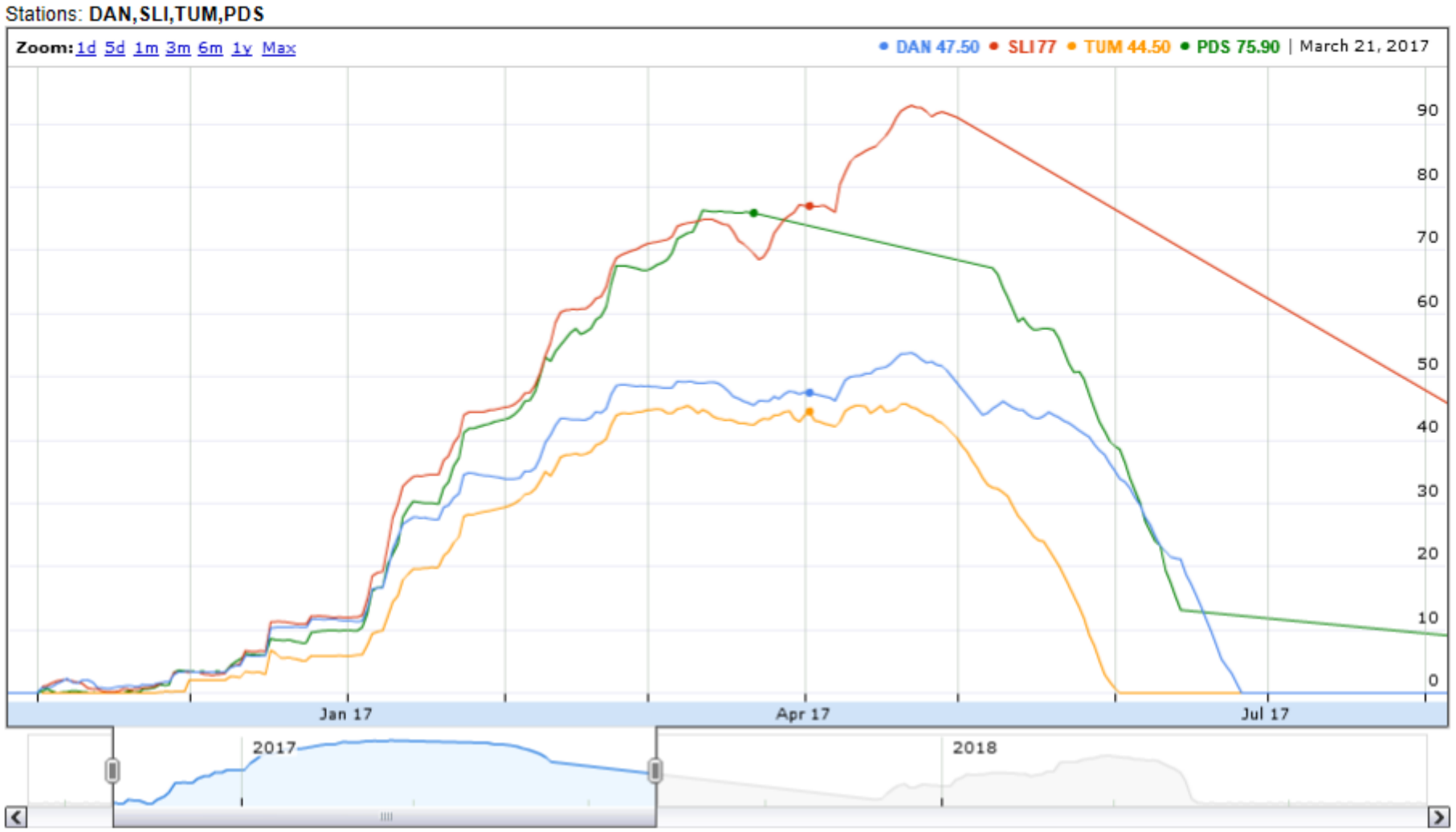
Provides search, query, charting, and sharing function for users



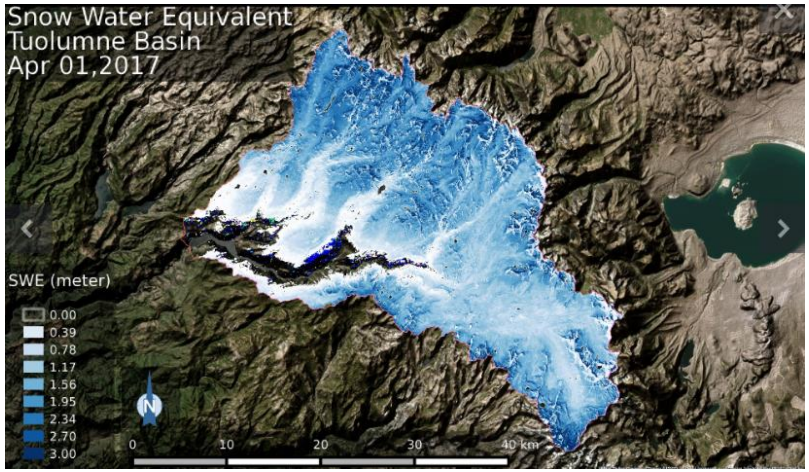
Snow Sensor Data on FERIX



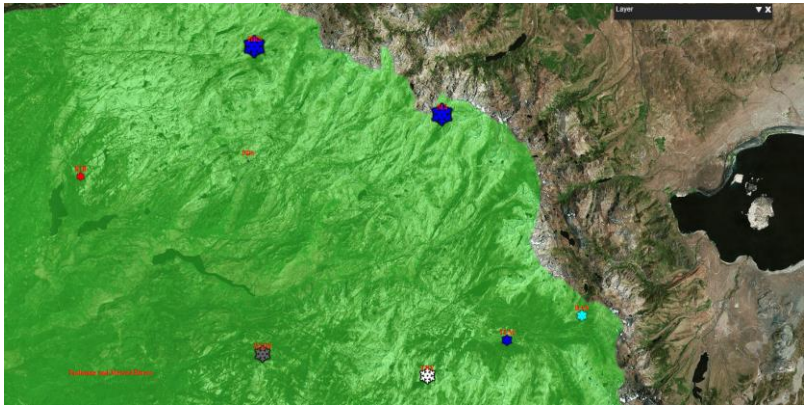
Snow Sensor Data on FERIX



ASO/iSnobal on FERIX



ASO



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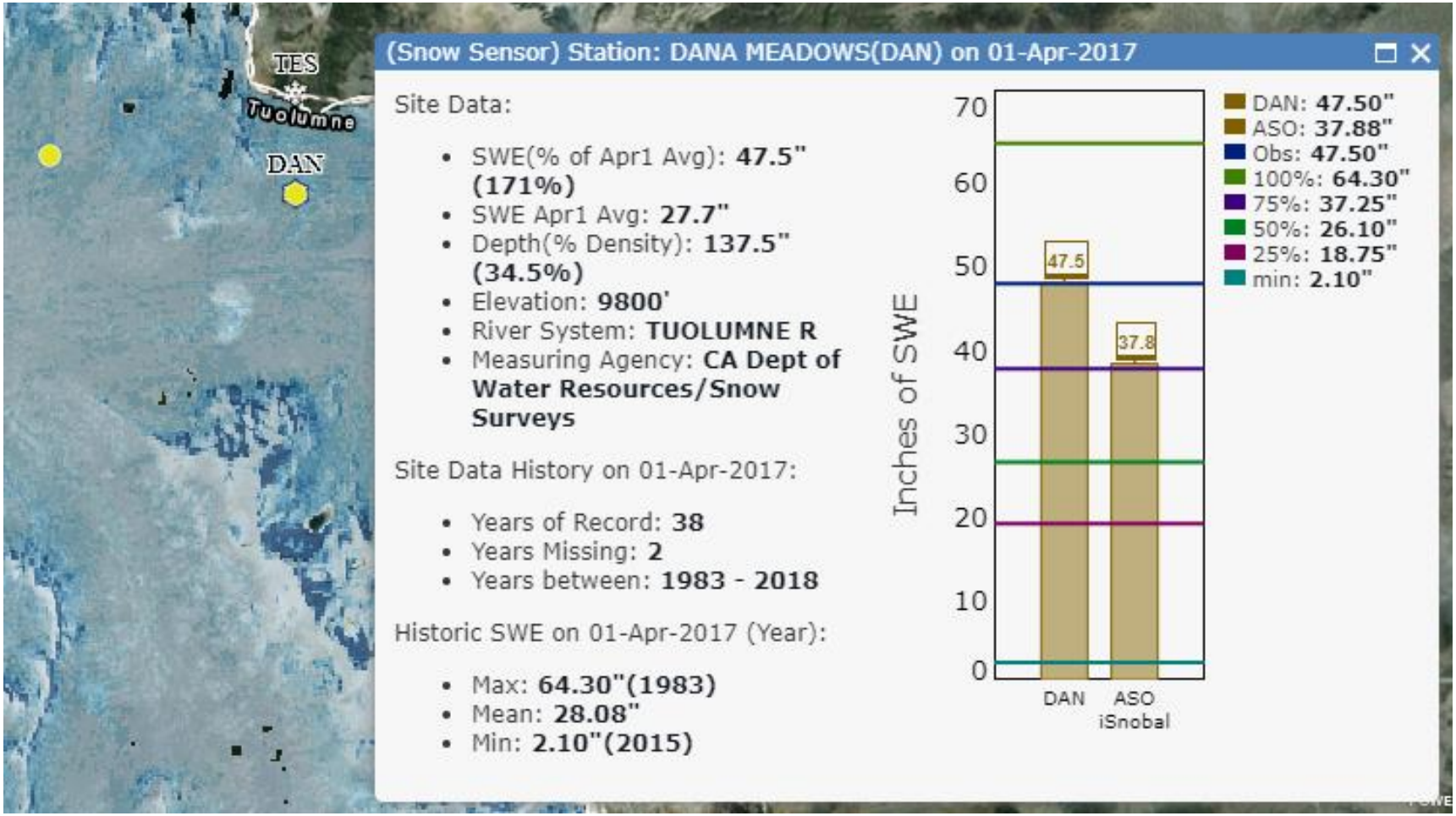
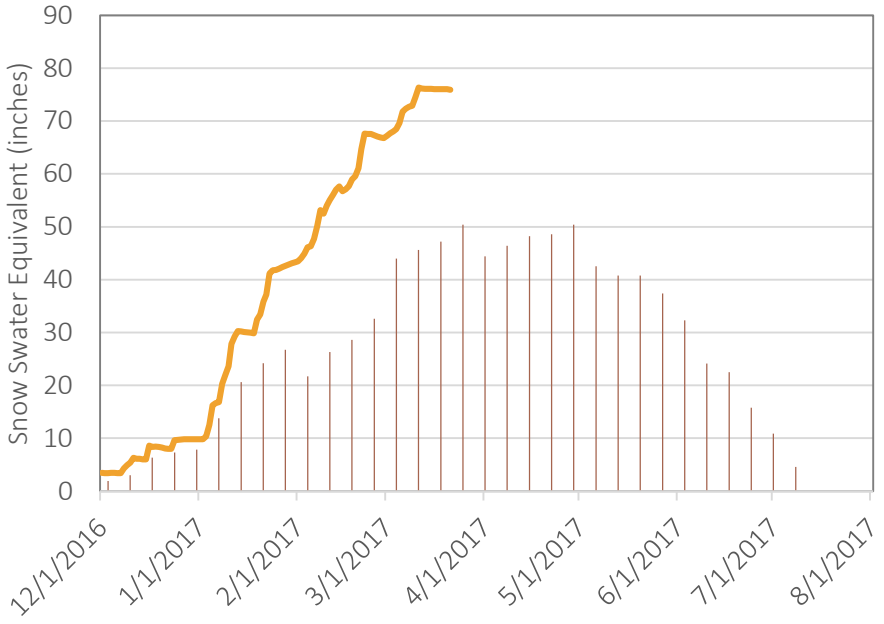
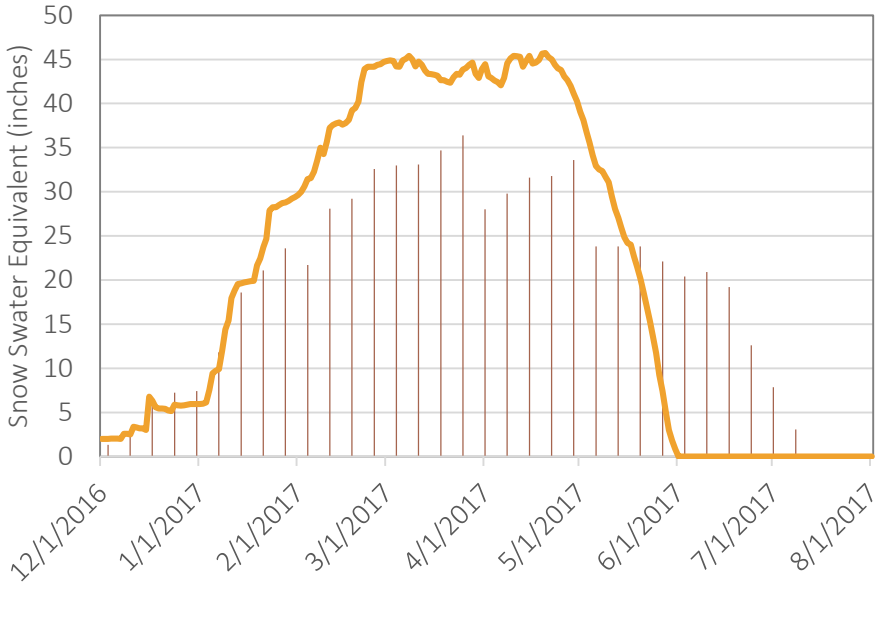
ASO/iSnobal data on FERIX



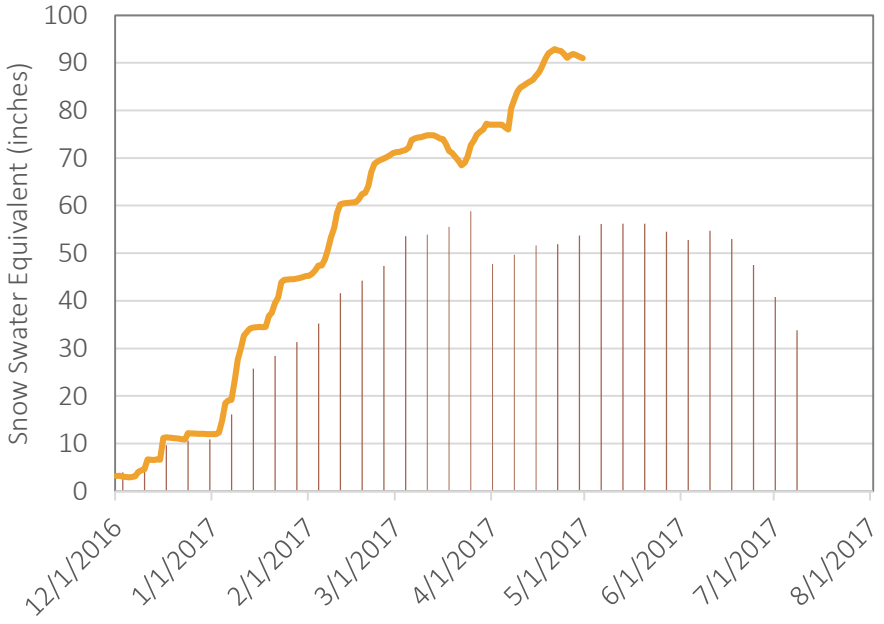
Paradise Meadows Snow Sensor WY2017 (7,650 ft)



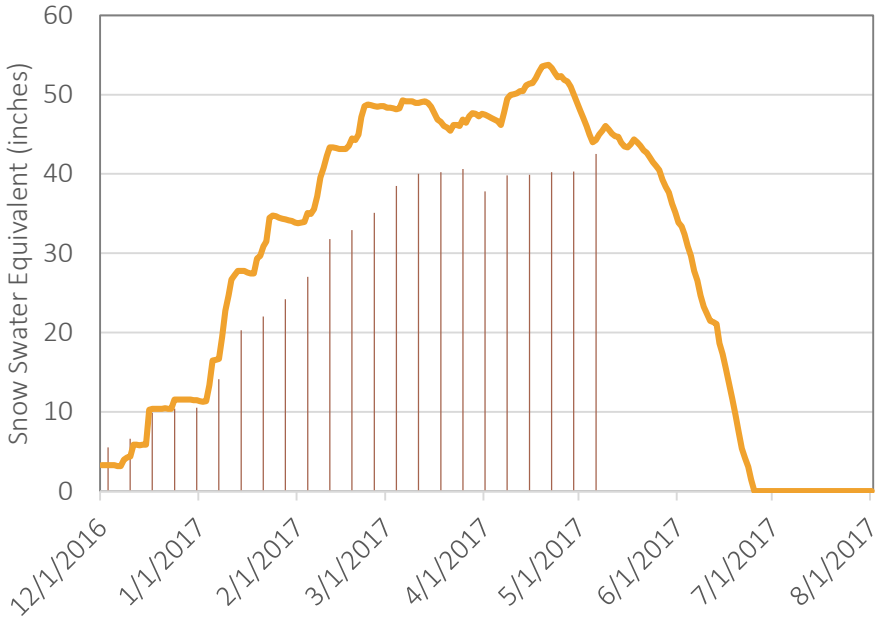
Tuolumne Meadows Snow Sensor WY2017 (8,600 ft)



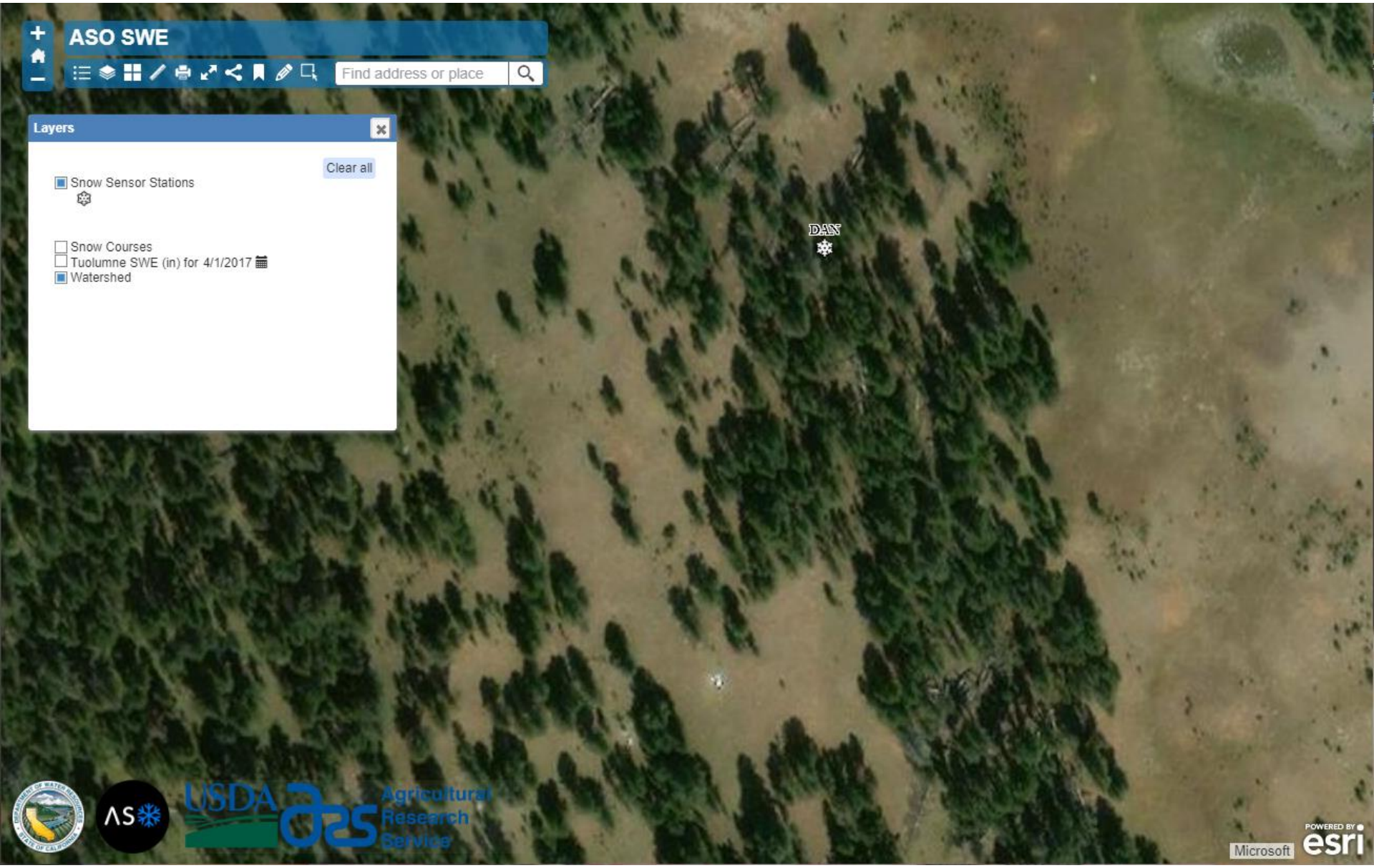
Slide Canyon Snow Sensor WY2017 (9,200 ft)



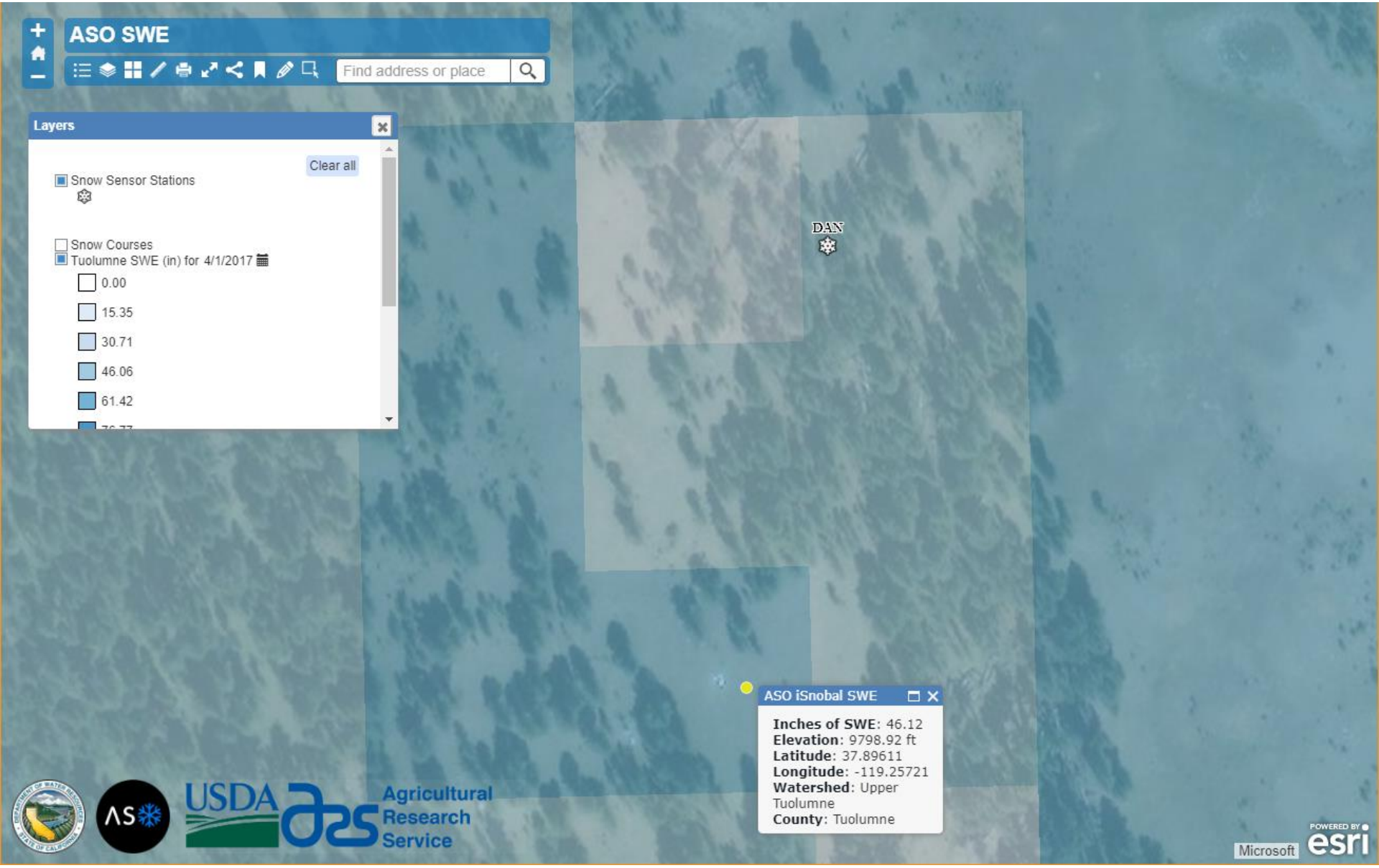
Dana Meadows Snow Sensor WY2017 (9,800 ft)



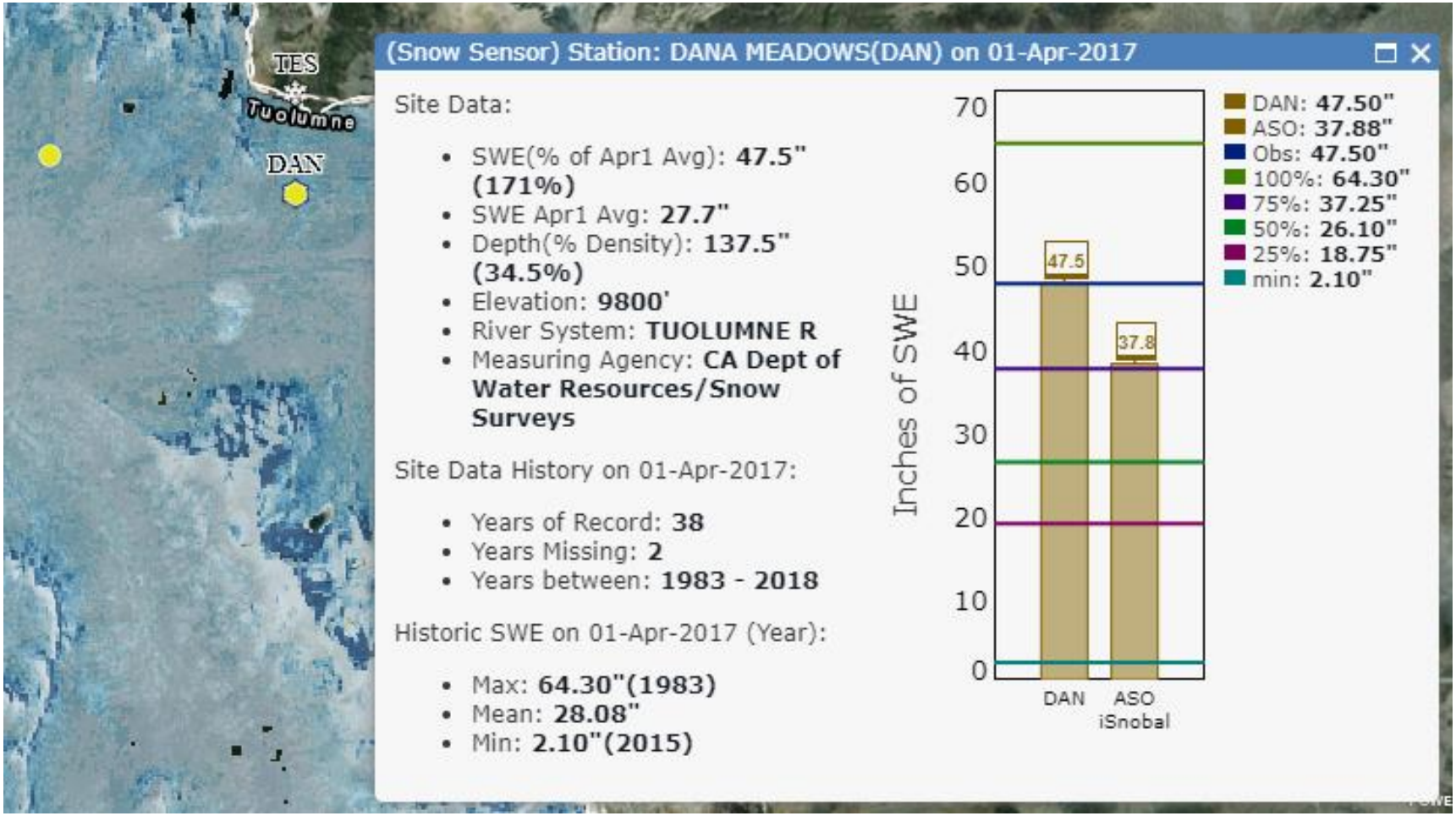
Better GPS Coordinates



Much better…


ASO SWE
Find address or place
Layers
Clear all
Snow Sensor Stations
Snow Courses
Tuolumne SWE (in) for 4/1/2017
0.00
15.35
30.71
46.06
61.42
DAN
ASO iSnobal SWE
Inches of SWE: 46.12
Elevation: 9798.92 ft
Latitude: 37.89611
Longitude: -119.25721
Watershed: Upper Tuolumne
County: Tuolumne
USDA
Agricultural Research Service
Microsoft
esri

ASO/iSnobal data on FERIX



Questions?

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